Mapping Tools to Support Environmental Justice
Thursday, 10:00-10:55 a.m.
Atrium Ballroom

Toxic Trends Mapper: Empowerment of Vulnerable Communities through Data Access

Reico Robichaux and Jacob Lesser, Presenters

The Toxic Trends Mapper (http://toxictrends.org) was recently updated with the EPA's latest Risk Screening Environmental Indicators (RSEI) data. This map application now shows industry environmental performance trends from 1996 – 2014 using a framework of industrial environmental performance indicators that differentiates leading and trailing facilities by their combined changes in both air pollution risk and release volume. Unrestricted online access to RSEI and TRI data and easy to understand mapping visualizations are an important tool to allow residents living in vulnerable communities access to a data source that will help monitor chemical releases, assess health impacts, communicate potential risks, and help residents advocate for improved local, state, and national policies. The Deep South Center for Environmental Justice, DSCEJ, will use social media marketing to inform and educate vulnerable communities about the Toxic Trends Mapper directing them to the DSCEJ website where the map application will be available. The DSCEJ will also implement a supporting website content marketing strategy to support the launch of the map application via social media marketing. The goal is to create some measure of content virility to assist in spreading information about the map application in local, national, and global communities seeking parity in environmental concerns.

Integrating California and Mexico's TRI Data into CalEnviroScreen

Vanessa Galaviz, Presenter

The California Communities Environmental Health Screening Tool (CalEnviroScreen) is a science-based method for evaluating multiple pollution sources in a community while accounting for vulnerability to pollution. Its ranked scores provide an environmental justice-related measure of census tracts statewide. The information has been used to focus compliance and enforcement activities, and to direct funding from several state programs. The tool uses 19 indicators of pollution and vulnerability based on publicly available data. Among the pollution indicators is the Risk-Screening Environmental Indicators (RSEI) model based on Toxics Release Inventory (TRI) data. California communities located near the Mexican border raised concerns that local impacts were ranked too low because CalEnviroScreen failed to incorporate cross-border pollution. To address this gap, the Office of Environmental Health Hazard Assessment (OEHHA) collaborated with USEPA to incorporate air emissions data from facilities in Mexico. Toxic release emissions data from Mexico were incorporated into the RSEI model by Abt Associates, the contracted RSEI modelers for USEPA. RSEI uses TRI air release

data and combines the reported chemical emissions with toxicity estimates and models dispersion of chemicals in air by incorporating physicochemical properties, weather, and geography. Toxicity-weighted concentrations from the RSEI results for Mexico were then added to California RSEI results and aggregated to census tract level estimates by taking a land-area weighted average of the census block-level values for each tract. Census tracts were then ranked based on the toxicity–weighted concentrations estimate and assigned a percentile based on their position in the distribution. The data set will be used to update the toxic releases indicator in the next version of CalEnviroScreen and will better characterize binational pollutant impacts on communities near the California-Mexico border.

Environmental Justice and Vulnerability in Indianapolis: A Prototype of the Multi-Layer Data Visualization and Communication Act

Yi Wang, Presenter

Environmental justice in Indianapolis has not been considered a major contributor of health due in part to lack of hazard and health communication tool available for decision-maker at local and state agencies. We create data visualization maps that inform policy makers to identify areas and people vulnerable to environmental burden and effects of climate change. Methods: Working with the National Institute of Health, EPA Toxics Release Inventory (TRI) Program and the Society for Chemical Hazard Communication (SCHC), we leveraged publicly available data (e.g. from the TRI and State health, environmental agencies and NOAA and Landsat satellite imageries) to develop an interactive hazard and health communication tool to display and communicate environmental vulnerability and burden and potential health and environmental effects of climate change on disadvantaged neighborhoods in Indianapolis. We created visualizations to identify: 1) relative ranking of environmental burden and vulnerability by census tract in Indianapolis; 2) locations at increased risk of flooding and associated vulnerabilities with respect to housing structures (mold), other critical infrastructure (including hospitals and schools), and contaminated sites and repositories for waste; 3) areas with an increased level of ozone formation from mobile and non-mobile sources of VOCs as they relate to increases in overall ambient temperature and localized urban heat island effects; and 4) hotspots where residents are more vulnerable to acute cardiovascular emergency call and hospitalization as a result of urban heat island effects.

Results: these maps may aid decision-makers in identifying targeted areas and/or at-risk populations for environmental justice issues and disaster prevention, preparation, and response to climate change. This tool provides a cost-effective way to empower communities for environmental justice and mitigate potential impacts of climate change. Conclusion: the mapping tool may be invaluable for policy makers and grass-root community groups.